The Doe Run Company
Southeast Missouri Mining and Milling Division

Transportation Plan for Lead Concentrate

THE DOE RUN COMPANY

September 2002
April 2003 (Revised)
August 2003 (Revised)

BARR

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Appendices

1.0 Introduction

The Doe Run Company Southeast Missouri Mining and Milling Division (SEMO) has prepared a transportation plan for the hauling of lead concentrate. The transportation plan addresses truck transport of lead concentrate from the mining and milling facilities of Buick, Brushy Creek, Fletcher and Sweetwater. The purpose of the plan is to minimize Doe Run's potential for contribution of lead-bearing materials on public roadways during the course of commerce. The plan provides procedures and assurances that truck transport of lead concentrates from the SEMO facilities will be accomplished in a manner that controls potential impacts on human health and the environment.

A clearance criteria[1] for total lead dust on the public roadways has been established and a verification-sampling program implemented. The greatest potential for lead-bearing material on the public roadways associated with transport of lead concentrate from the SEMO facilities would be expected to be near the mine/mill facilities. Therefore, if the total lead dust loading on the public roadways outside the SEMO mine/mill facilities serving as haul roads complies with the clearance criteria, the demonstration has been made that the potential for contribution from the hauling of lead concentrate is negligible.

Based on an analysis of the clearance criteria for total lead dust loading on public streets, the transportation plan for the SEMO facilities consists of the following:

1) Incorporation of the clearance criteria of 5.0 mg Pb/sq. ft. for total lead dust loading as clearance criteria for public roadways serving as haul roads for the SEMO facilities;

2) Establishment and implementation of a verification sampling program for each SEMO facility to document compliance with the clearance criteria;

3) Inspection and certification of inspection for each concentrate transport truck prior to leaving the SEMO facility to ensure that the truck is ready for transport; and

4) Commitment to regularly review and update this plan. This plan will also be reviewed and updated if a facility fails to meet the clearance criteria.

[1] An interim clearance criteria of 5.0 mg Pb/sq. ft. has been developed for Doe Run.

2.0 Establishment of Clearance Criteria

A total lead dust loading of 5.0 milligrams per square feet (mg Pb/sq. ft.) on the road surface is established as the reference point (standard) for public road clearance sampling for the SEMO facilities. This clearance criteria is a very conservative figure when applied to the SEMO facilities.

3.0 Verification Sampling Program

The verification-sampling program shall consist of obtaining dust samples and analyzing for total lead content from the nearest public roadway used as a haul route for the mine/mill facility and comparing the result to the clearance criteria of 5.0 mg Pb/sq. ft. If the sample result in mg Pb/sq. ft. does not exceed the clearance criteria of 5.0, the road surface will be considered adequately clean. Samples will be taken and analyzed on a monthly basis with the results documented in a record maintained at the SEMO offices.

Multiple sample points will be designated at three of the SEMO facilities. Lead-concentrate trucks traveling from Fletcher, Buick and Brushy Creek mills may go either direction, north or south, when departing the private haul road, therefore sample locations have been established in both the northbound and southbound lanes. The Sweetwater facility will have only one designated sample point, as lead-concentrate trucks leaving that facility normally only travel in one direction. Documentation of the comparative test results will be available for the Environmental Protection Agency (EPA) and/or the Missouri Department of Natural Resources' (MDNR) inspection.

The sampling locations are shown on Figures 1 through 4 in Appendix A for the Buick, Brushy Creek, Fletcher and Sweetwater facilities. The sampling locations were established on the nearest public roadway to the mine/mill that is utilized as a haul route. Sampling points were established approximately 100 feet from the intersection of the public highway and the Doe Run private road. The sampling points will be clearly marked on the pavement for ease of locating the sampling point.

The sampling protocol used will follow, as closely as possible, the procedure used by the EPA contractor. The sampling protocol is provided in Appendix B.

In addition to the establishment of the verification-sampling program, an evaluation of lead-concentrate storage and transport truck loading operations at the mills has been initiated. Storage modifications have been made and changes to loading procedures implemented in an effort to minimize the potential for spillage of concentrate during loading operations and the tracking of lead-bearing materials from the

SEMO facilities. Additional storage modifications and loading procedure changes will be implemented as improvements are identified in our ongoing effort to upgrade the facilities' operations and decrease the potential for tracking of lead-bearing materials that may be associated with the transport of lead concentrate from the SEMO facilities.

4.0 Concentrate Trucks

The lead concentrate is hauled from the mine/mill to the receiving sites by tractor-trailer. The trailer units are open-top, end-dump box units. The trailers are covered with nonporous tarps in good condition. The tarps extend over the sides and ends of the trailer and are tightly strapped in place, thereby providing a tight cover over the box unit. Because of the high density of the lead concentrate, the weight limit of a loaded trailer is reached before the volume capacity of the trailer is fully utilized. Typically the loads occupy only about 25% of the total volume of the trailer, reducing the potential for concentrate spillage along the tarp-trailer interface during transport and the tarp installation/removal activities. Tarped trailers used to haul DOT Hazard Class 9 materials in bulk meet DOT packaging requirements. A copy of the concentrate truck inspection sheet utilized at the mine/mill (loading) and the receiving site (unloading) is provided in Appendix C.

5.0 Structural Controls

A work group composed of employees involved in all aspects of loading and transporting lead concentrate has been evaluating mill procedures and processes in order to make improvements and changes as needed to reduce the tracking of lead concentrate. The first major result of that task force was the purchase and use of the Enviro Whirl street sweeper. More recent improvements implemented by the group are noted in the structural controls outlined below. This group will continue to meet, identify and implement improvements to the process. A number of materials handling improvements are being undertaken as a result of this process.

The focus of the structural controls is to keep the concentrate trucks in clean areas. These controls include:

5.1 Concentrate Truck Route

Concentrate truck roads will be paved, repaved as needed, and where appropriate, the road surface will be raised by a few inches to allow more effective cleaning and maintenance of the road surface. The areas where concentrate may be stored outside will be sloped to keep concentrate off

road surfaces. Culverts will be installed under roads to allow wash water and storm water to drain away from the area without crossing over the road surface. Copies of the concentrate truck route for each mine/mill is provided in Appendix D.

5.2 Traffic Controls

Traffic controls/barricades will or have been installed to keep concentrate truck traffic within the designated haul roads.

5.3 Concentrate Trucks

Trailers are equipped with heavy-duty tight sealing tarps; the trailers are constructed to prevent sifting of concentrate. The tailgates are fitted with a double locking closure to ensure a snug fit at the interface between the trailer bed and tailgate and to prevent the tailgate from opening during transport. The inspection includes assuring that the tailgate is securely latched and sealed shut.

6.0 Non-Structural—Best Management Practices

6.1 Street Sweeping

SEMO has purchased an Enviro Whirl street sweeper and has created a new, full-time position of Environmental Equipment Operator dedicated to the operation and maintenance of the sweeper. An experienced Doe Run employee will fill this position. Proper use and maintenance of the street sweeper is included in the Operator training. The street sweeper will be shared between the mills two days every two weeks to clean internal concentrate truck routes going into and out of the facilities.

6.2 Inspection

All loaded lead-concentrate trucks are inspected and certified to be transport-ready prior to leaving each SEMO facility. The inspection includes a general visual inspection of the outside of the truck and trailer, including undercarriage and tailgate, for any visible concentrate. Any visible concentrate on the truck or trailer will be physically removed prior to certification of the truck as transport-ready. The inspection confirms that the truck is weighed to ensure compliance with applicable truck weight requirements, appropriately placarded, cleaned as necessary, and securely tarped prior to leaving the facility. A copy of the bulk truck inspection sheet utilized by Doe Run at both the mine/mill and receiving facilities is included in Appendix C. The transport truck

inspection and certification is completed by Doe Run personnel, but the certification sheet is also signed by the truck driver to ensure that the driver is knowledgeable as to the inspection requirement and obtains the inspection prior to leaving the facility.

6.3 Training

SEMO is preparing a training syllabus for truck inspectors and will implement initial training immediately and remedial training as needed. Training will cover all aspects of this plan, requirements to complete the inspection sheet (Appendix C), and issues associated with tracking of lead concentrate.

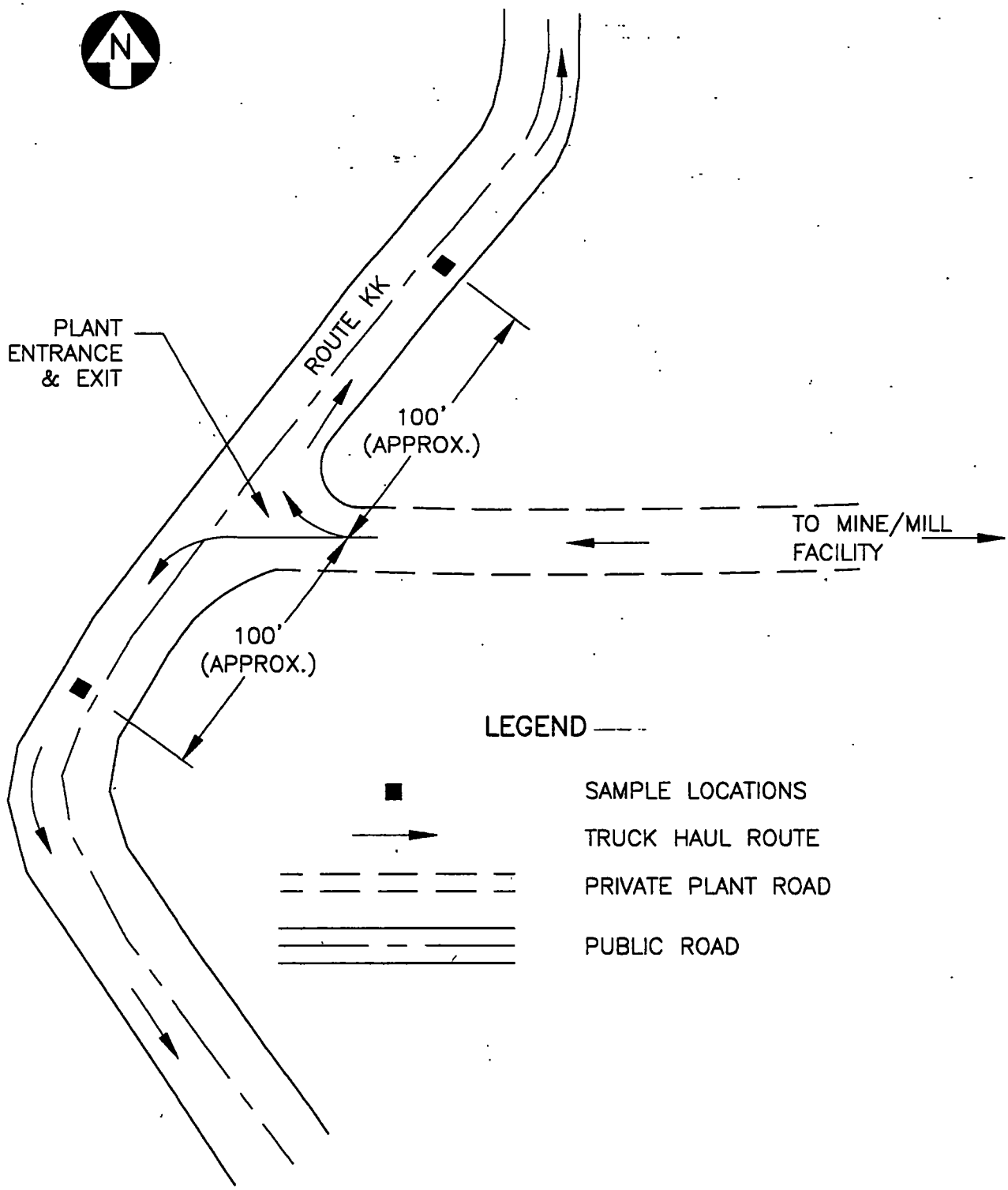
6.4 Management Review

SEMO management will review the Transportation Plan for Lead Concentrate annually to determine its effectiveness. The review will include structural controls and best management practices. Structural controls and best management practices not meeting expectations or not providing adequate control will be updated. Where appropriate, designated alternatives or new structural controls and best management practices will be implemented.

7.0 Response Plan

In the event the quarterly average of the results from the verification sampling on the public roadway at the designated sampling points for any of the SEMO facilities exceeds the established clearance criteria for two consecutive calendar quarters, a response plan will be prepared and implemented for the facility failing to meet the clearance criteria. This transportation plan will be reviewed and modified. Appropriate changes will be implemented. The amendments will be submitted to EPA and MDNR within 60 days of receipt of analysis showing consecutive quarterly sampling results above the criteria. The review of this plan will include the evaluation of storage, transport truck loading, and onsite hauling of lead concentrate and recommend improvements to decrease the potential for tracking and/or depositing of lead-bearing materials on the public roadways. The review may include an evaluation of the following; adequacy of onsite roadways, effectiveness of onsite control measures, and increased product truck washing or vacuuming as may be determined to be the best solution.

Appendix A



NOTE: THIS DRAWING IS NOT TO SCALE.

M:\cad\2548024\BUICK.dwg Plot at 1 08/29/2002 12:21:46

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Scale	NTS
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Checked	TLM
Designed	
Approved	

THE DOE RUN COMPANY
BUICK MINE/MILL

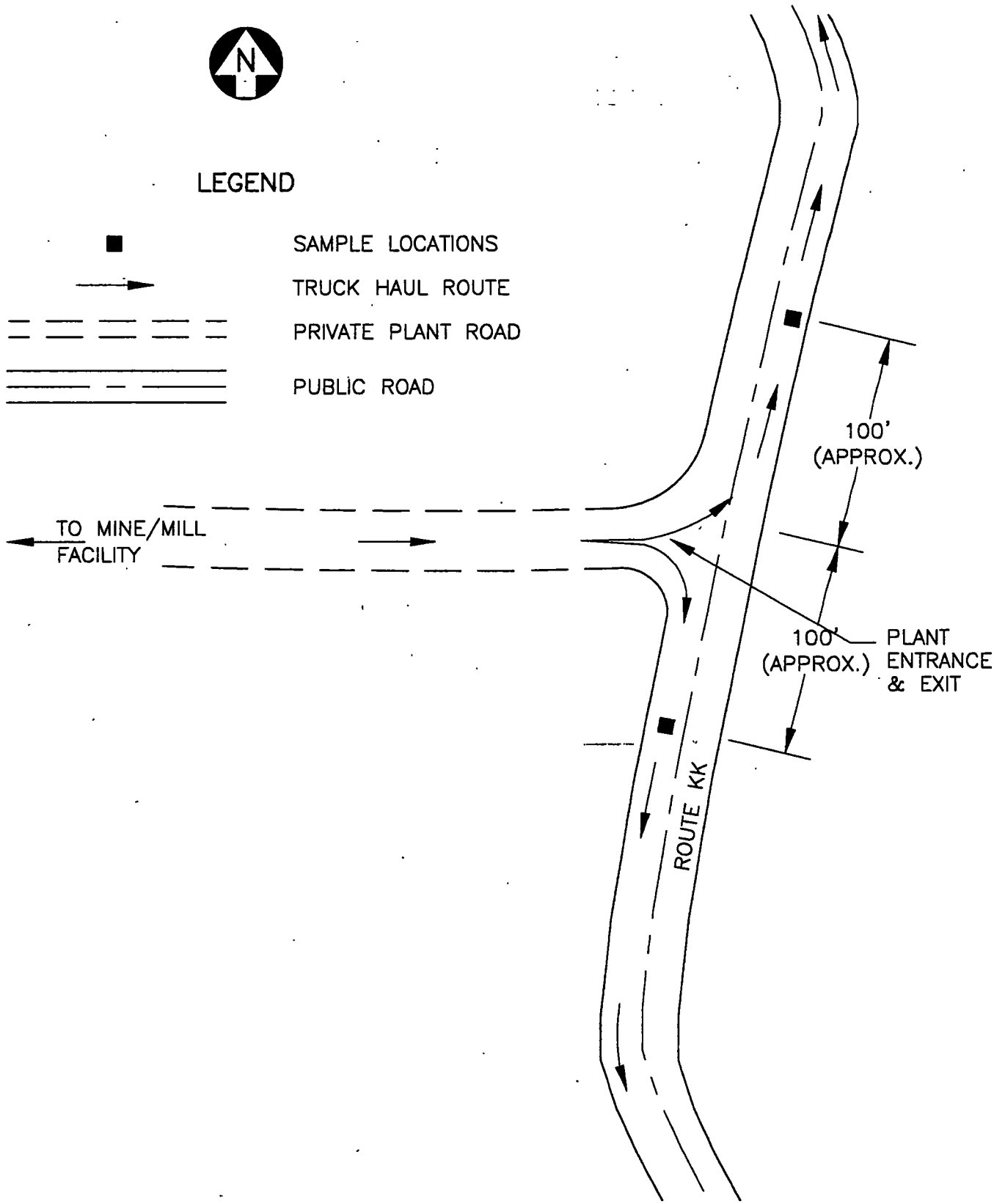
SAMPLE LOCATION MAP

BARR PROJECT No. 25/48-024

DWG. No. FIGURE 1

SHEET No.

REV. No. —



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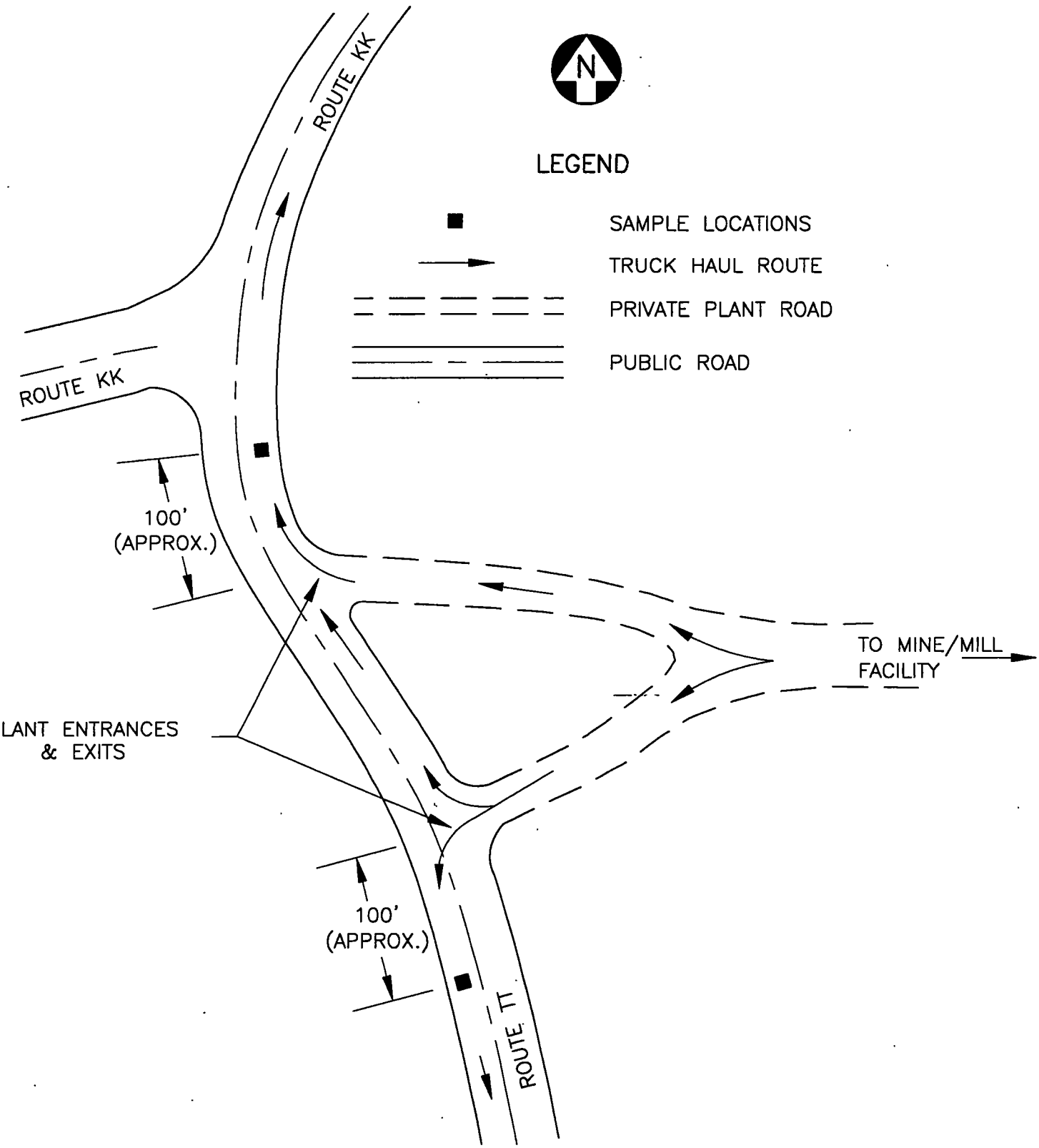
THE DOE RUN COMPANY
BRUSHY CREEK MINE/MILL

SAMPLE LOCATION MAP

BARR PROJECT No. 25/48-024
DWG. No. FIGURE 2
SHEET No.
REV. No. –



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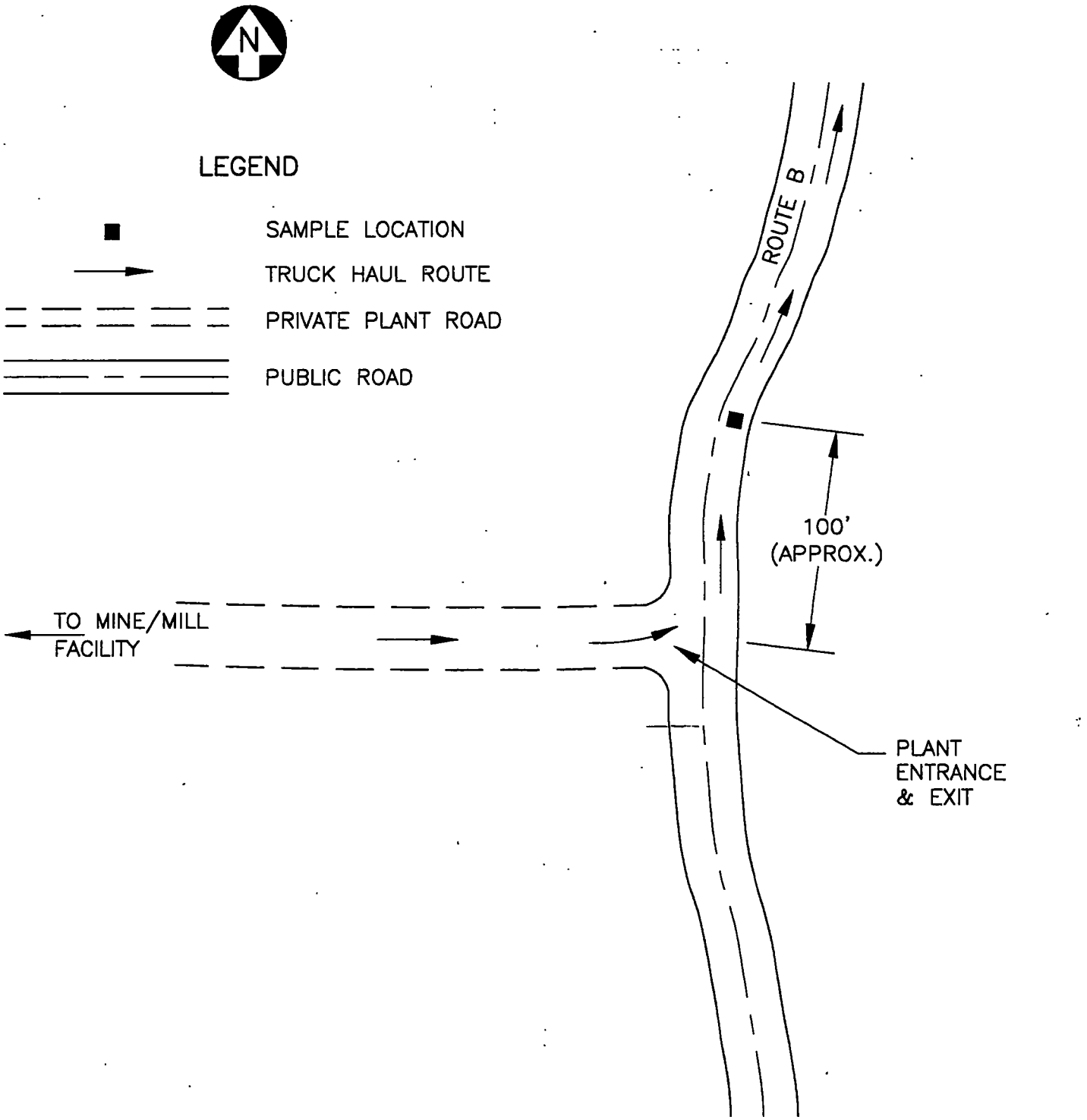
THE DOE RUN COMPANY
FLETCHER MINE/MILL

SAMPLE LOCATION MAP

BARR PROJECT No. 25/48-024
DWG. No. FIGURE 3
SHEET No.
REV. No. 1



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THE DOE RUN COMPANY
SWEETWATER MINE/MILL

SAMPLE LOCATION MAP

BARR PROJECT No. 25/48-024
DWG. No. FIGURE 4
SHEET No.
REV. No. –

Appendix B

Appendix B

Street Sampling Protocol

Sampling protocol will follow, as closely as possible, the procedure used by the EPA contractor. Separate locations will be laid out for sampling. The locations will be marked so retests can be done in the exact same location and each of the locations will be an area of known size so results can be related to the square footage area.

A dust collection sample filter attached to a HEPA vacuum will be used for collecting dust. A new sample filter will be used for each sample. Doe Run will lay out a 3 ft. x 3 ft. area to be vacuumed and sampled. The area will be vacuumed over in one pass. Samples will be identified and stored in a lab bag until analyzed.

Equipment Used

Dust Collection Sample Filter	Part No. FAB-07-03-006PS
1.245" x 4" Inlet Nozzle	Part No. 924-MV-18-004N
HEPA Vacuum VACOMEGAH	950-AI-00-120
Portable Generator	

Sample Analysis

ICP: Method ASTM 3050 B for soils and sludge will be used to find the percent Pb.

Final Information

1. Initial Result
   - Percent Pb
   - Mg Pb per square foot
2. Final Result
   - Analysis result in mg Pb/ft^2 is compared to established standard as confirmation that the road surface is adequately clean.

Appendix C

Appendix C

The Doe Run Company
Bulk Truck Inspection Sheet

This inspection and release form certifies that this bulk tractor and trailer are clean and free of loose material prior to leaving the plant site. My signature on this form certifies that I have inspected the areas of this truck listed below, and that any loose material has been removed prior to leaving the plant. I further certify that this truck has been inspected, is not loaded beyond its legal weight limit and meets the following criteria:

TRUCK CLEANLINESS: (sides, tires, wheels, tailgate, frame, steps, top rails, undercarriage, mud flaps, etc.)	Leave SEMO	Arrive Smelter	Leave Smelter
Loose Material Removed	_____	_____	_____
Load Securely & Completely Tarped	_____	_____	_____
Tailgate Securely Latched & Sealed Shut (wing nuts, pin)	_____	_____	_____
Placards on 4 sides	_____	_____	_____
Truck Washed	_____	_____	_____
	_____	_____	_____

Mill: Buick _____ Fletcher _____ Brushy Creek _____ Sweetwater _____

Smelter: Glover _____ Herculaneum _____ Buick Resource _____

DATE	TIME	TRUCK NUMBER	SCALE TICKET NUMBER

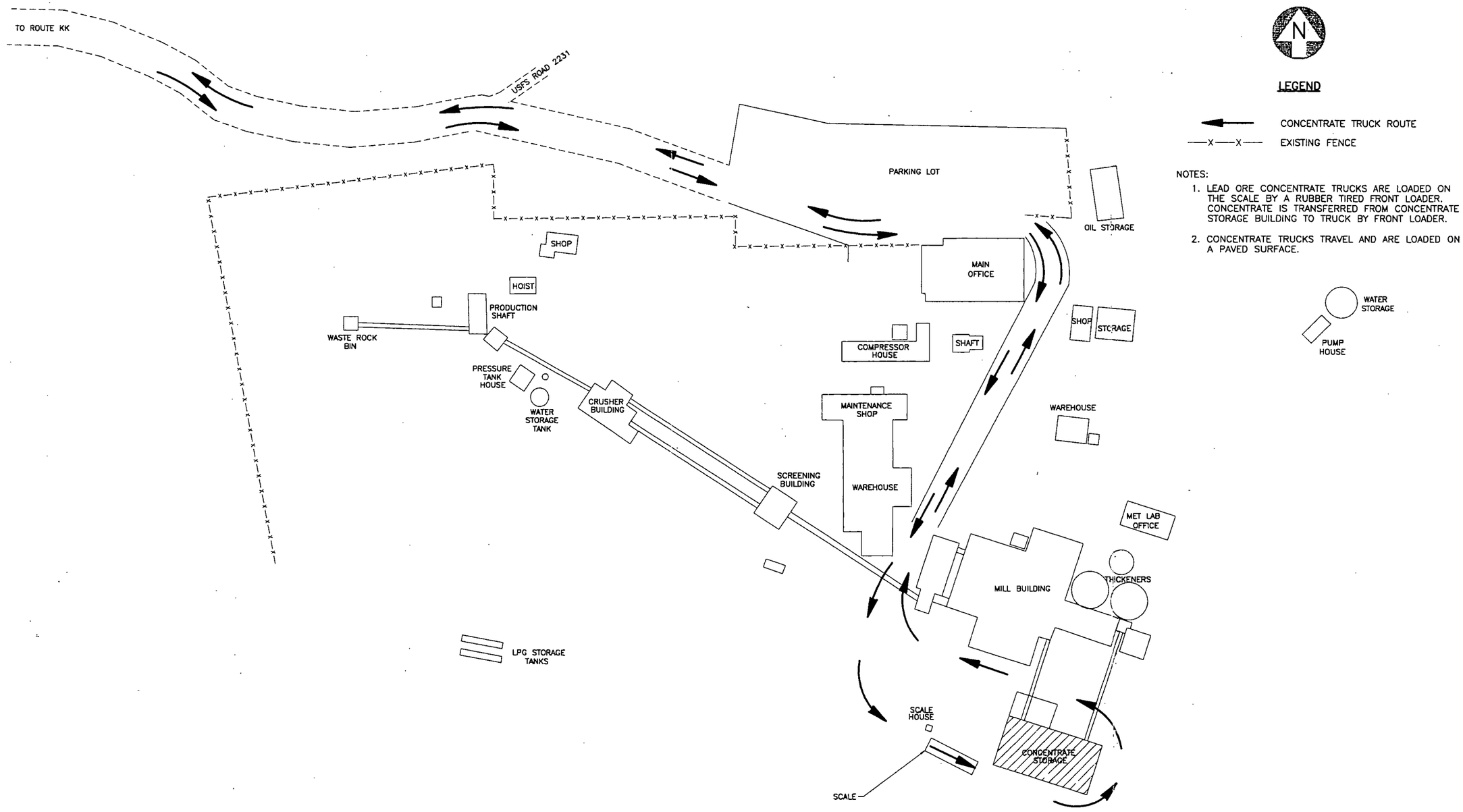
Signature of Mill Representative _____

Signature of Truck Driver _____

Signature of Smelter Representative _____

(WHITE COPY – Attach to truck ticket YELLOW COPY – Carrier Copy PINK COPY – SEMO Copy)

Appendix D



NOTES:

1. LEAD ORE CONCENTRATE TRUCKS ARE LOADED ON THE SCALE BY A RUBBER TIRED FRONT LOADER. CONCENTRATE IS TRANSFERRED FROM CONCENTRATE STORAGE BUILDING TO TRUCK BY FRONT LOADER.
2. CONCENTRATE TRUCKS TRAVEL AND ARE LOADED ON A PAVED SURFACE.

NOTE THIS DRAWING NOT TO SCALE.

NO.	BY	CHK.	APP.	DATE	REVISION DESCRIPTION

CLIENT
BID
CONSTRUCTION

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DATE RELEASED

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Date	8/03
Drawn	SDL
Checked	JYD
Designed	JYD
Approved	JYD

THE DOE RUN COMPANY
SEMO MINING & MILLING DIVISION

BUICK MINE/MILL

CONCENTRATE TRUCK TRAFFIC PATTERN

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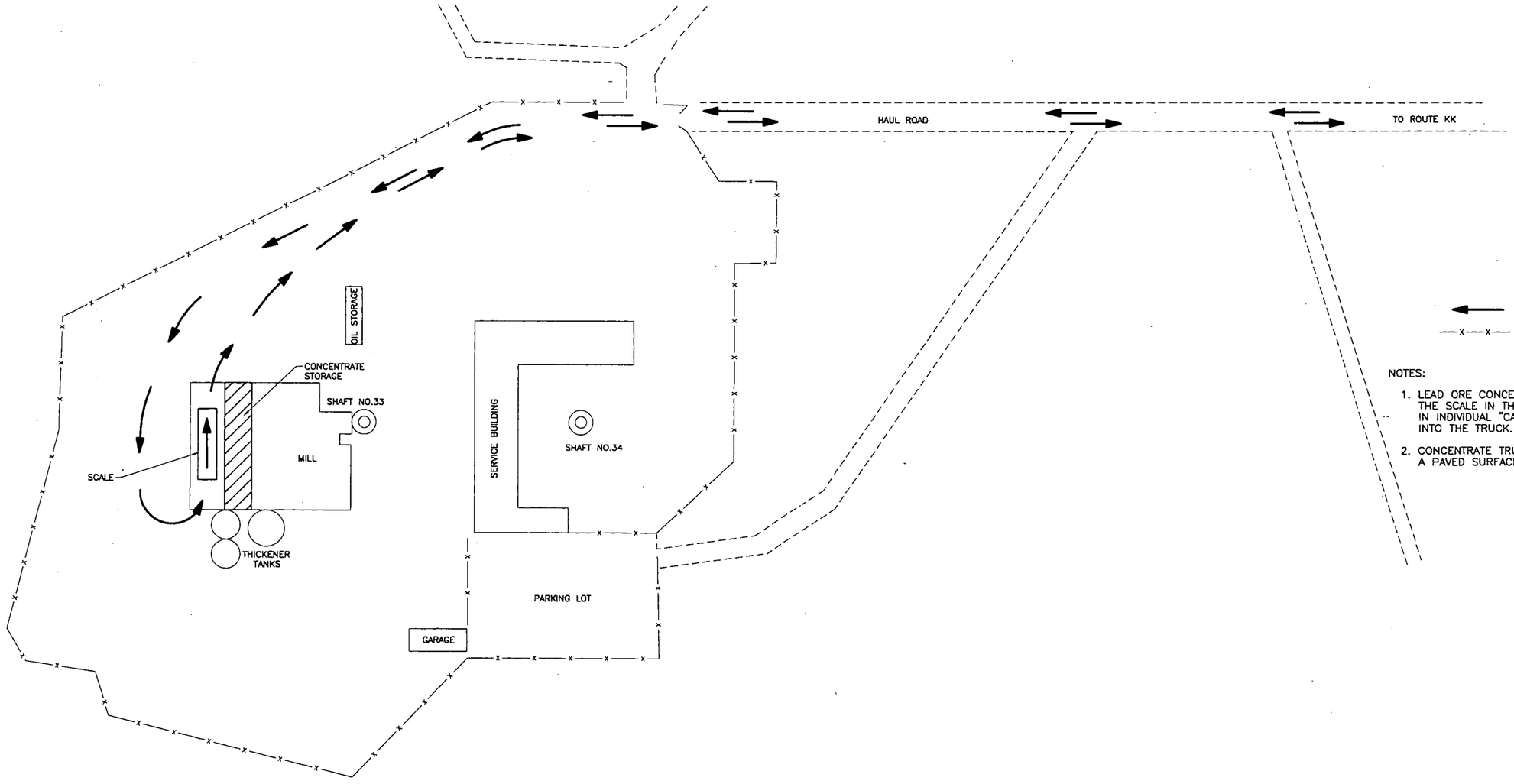
CLIENT PROJECT No.
DWG. No. DRAWING 1
REV. No. –



LEGEND

CONCENTRATE TRUCK ROUTE

—x—x— EXISTING FENCE

NOTES:

1. LEAD ORE CONCENTRATE TRUCKS ARE LOADED ON THE SCALE IN THE MILL. CONCENTRATE IS STORED IN INDIVIDUAL "CANS" THAT ARE UNLOADED DIRECTLY INTO THE TRUCK.
2. CONCENTRATE TRUCKS TRAVEL AND ARE LOADED ON A PAVED SURFACE.

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Date	8/03
Drawn	SDL
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Designed	JYD
Approved	JYD

THE DOE RUN COMPANY
SEMO MINING & MILLING DIVISION

BRUSHY CREEK MINE/MILL

CONCENTRATE TRUCK TRAFFIC PATTERN

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CLIENT PROJECT No.
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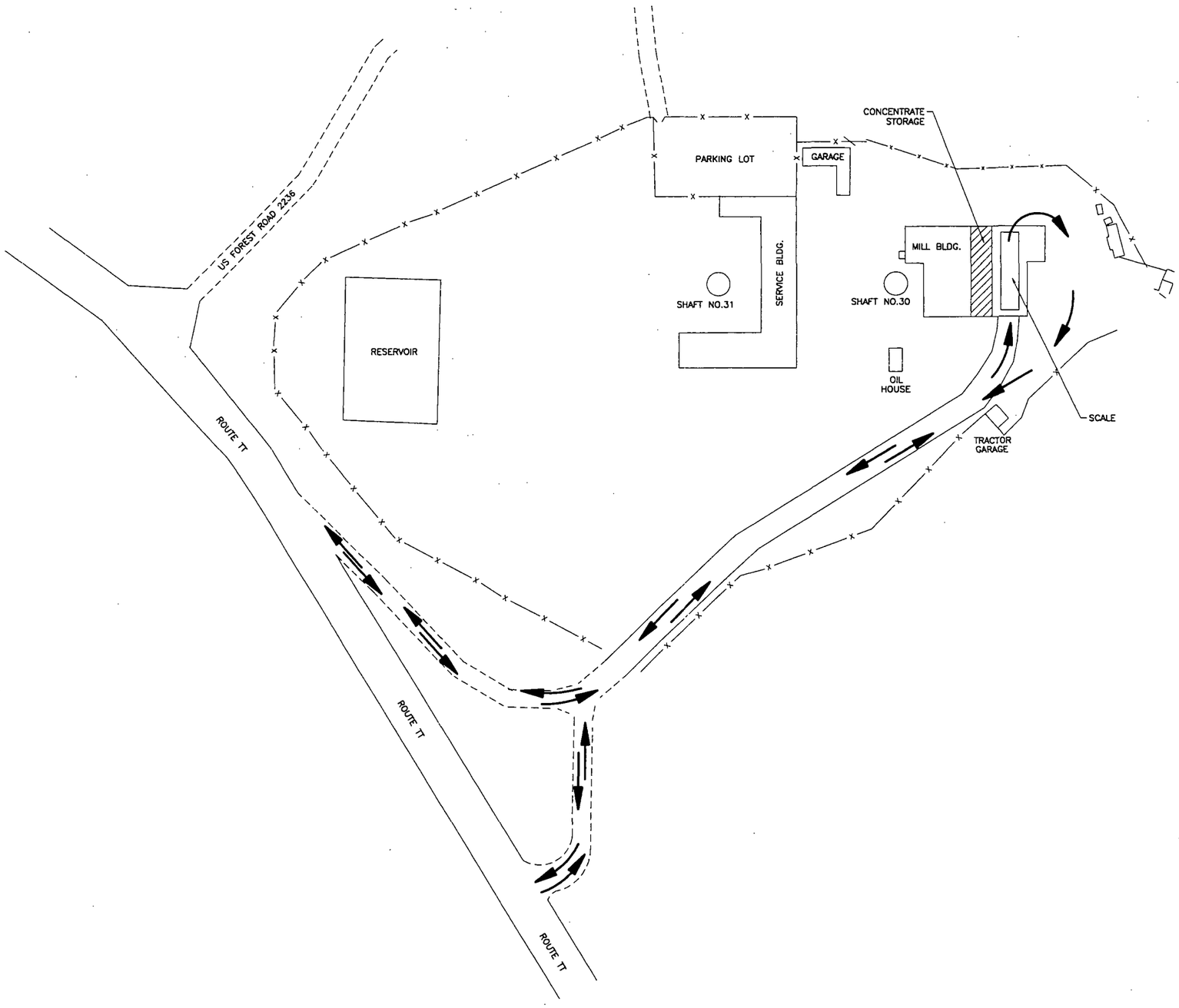

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LEGEND

CONCENTRATE TRUCK ROUTE

EXISTING FENCE

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THE DOE RUN COMPANY
SEMO MINING & MILLING DIVISION

FLETCHER MINE/MILL

CONCENTRATE TRUCK TRAFFIC PATTERN

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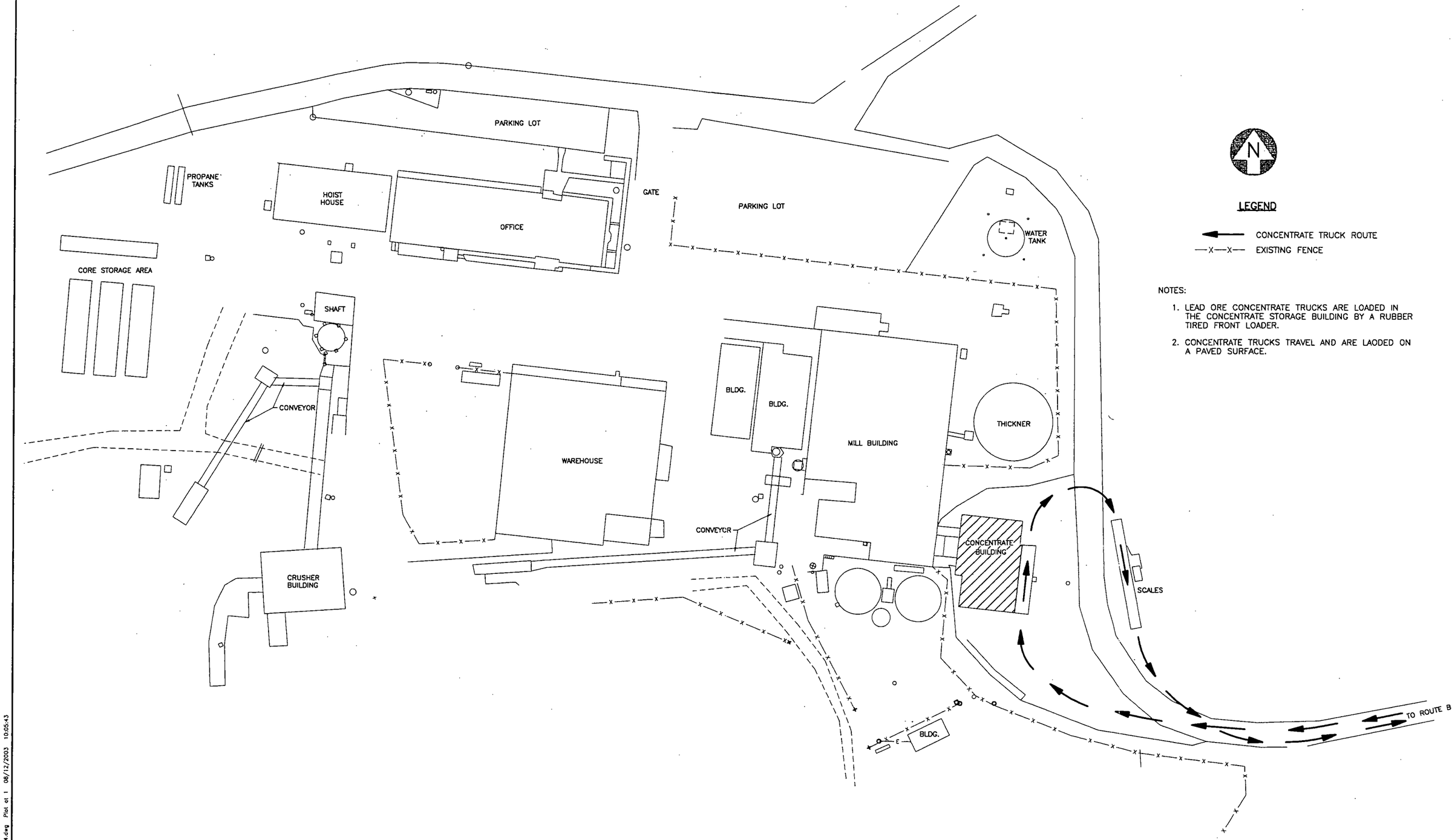

LEGEND

CONCENTRATE TRUCK ROUTE

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NOTES:

1. LEAD ORE CONCENTRATE TRUCKS ARE LOADED IN THE CONCENTRATE STORAGE BUILDING BY A RUBBER TIRED FRONT LOADER.
2. CONCENTRATE TRUCKS TRAVEL AND ARE LAODED ON A PAVED SURFACE.

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THE DOE RUN COMPANY
SEMO MINING & MILLING DIVISION

SWEETWATER MINE/MILL

CONCENTRATE TRUCK TRAFFIC PATTERN

BARR PROJECT No. 25/48-024
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DWG. No. DRAWING 4
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